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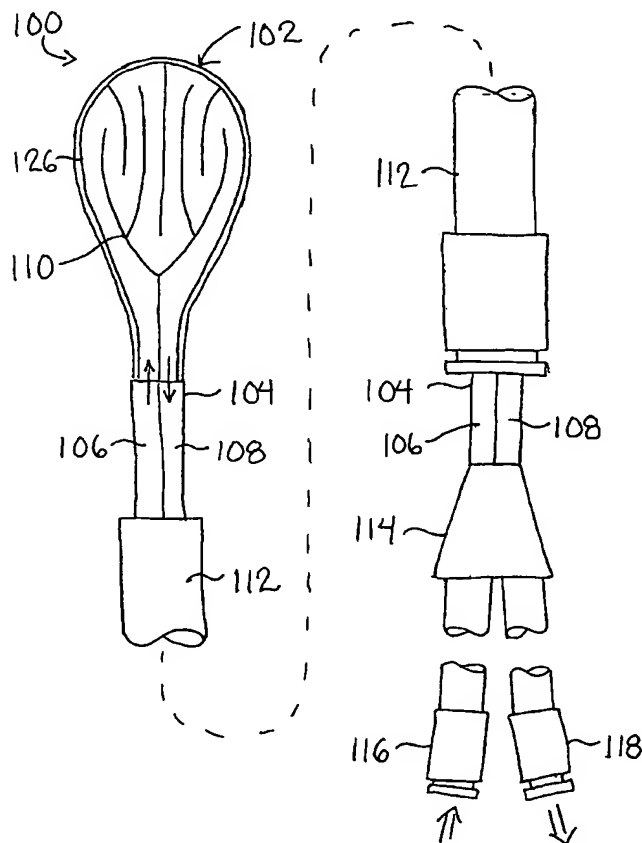
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(54) Title: THERAPEUTIC HYPOTHERMIA SYSTEM WITH INTRACARDIAC HEAT EXCHANGE CATHETER AND METHOD OF TREATING ACUTE MYOCARDIAL INFARCTION



(57) Abstract: An apparatus and method are described for treating acute myocardial infarction with therapeutic hypothermia. The apparatus takes the form of a therapeutic hypothermia system including a heat exchange catheter (100) with an intracardiac heat exchanger (102) and an external heat exchanger connected together in a heat exchanger circuit. The heat exchange catheter (100) has an elongated catheter shaft (104) configured for transluminal introduction into a heart chamber via a vascular insertion site. The apparatus and method provide rapid cooling of the affected myocardium to achieve optimal myocardial salvage in a patient experiencing acute myocardial infarction.

WO 2003/086253 A3



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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US/10311

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A61F7/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 861 021 A (DANN MITCHELL ET AL) 19 January 1999 (1999-01-19)  column 4, line 46 - line 54 column 6, line 36 - column 7, line 45 column 10, line 29 - line 55 claims; figures	1-3, 6, 8-10, 13-15, 17
A	US 4 111 209 A (BREGMAN DAVID ET AL) 5 September 1978 (1978-09-05) cited in the application column 8, line 45 - column 9, line 21 claims; figures 1, 2, 4, 6	1-20
A	US 2001/010011 A1 (WORTHEN WILLIAM J ET AL) 26 July 2001 (2001-07-26) claims; figures & US 6 383 304 B1 7 May 2002 (2002-05-07)	1-20
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
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- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

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## INTERNATIONAL SEARCH REPORT

International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/58397 A (RADIANT MEDICAL INC) 16 August 2001 (2001-08-16) claims; figures -----	1-20
A	WO 01/43661 A (RADIANT MEDICAL INC) 21 June 2001 (2001-06-21) claims; figures -----	1-20
A	US 2001/044644 A1 (MACHOLD TIMOTHY R ET AL) 22 November 2001 (2001-11-22) claims; figures -----	1-20

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 03/10311

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 21-51  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery and therapy
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US /10311

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